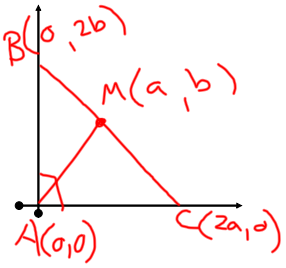
When using midpoint formula, then use even numbers.

Example
Prove that the measure of the segment that joins the vertex of a right ∠ in a right Δ to midpoint of the hypotenuse = ½ the measure of the hypotenuse

Given: Right ΔABC with hypotenuse BC. ($\overline{M}$ is the midpoint of BC.)
Prove: AM = ½ BC




$M\left(\frac{0+2a}{2}, \frac{2b+0}{2}\right)$
$(a, b)$

$AM = \sqrt{(a-0)^2+(b-0)^2}$
$AM = \sqrt{a^2+b^2}$

$BC = \sqrt{(2a-0)^2+(0-2b)^2}$
$\sqrt{4a^2+4b^2}$
$\sqrt{4(a^2+b^2)}$
$BC = 2\sqrt{a^2+b^2}$

$\therefore AM = \frac{1}{2}BC$

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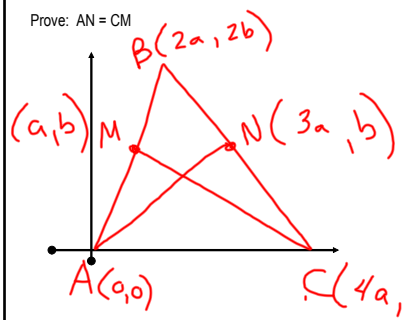
25. The segments joining the vertices to the midpoints of the legs of an isosceles triangle are congruent.

Given: Isosceles triangle ABC. (legs $\overline{AB}$ with midpoint M, and CB with midpoint N)
Prove: AN = CM




$AN = \sqrt{(3a-0)^2+(b-0)^2}$
$= \sqrt{9a^2+b^2}$

$CM = \sqrt{(4a-a)^2+(0-b)^2}$
$3a \quad -b$
$= \sqrt{9a^2+b^2}$

$\therefore AN = CM$

#26 Use same coord. #25

#27 #28 Not isosceles Refer ex 3 Notes